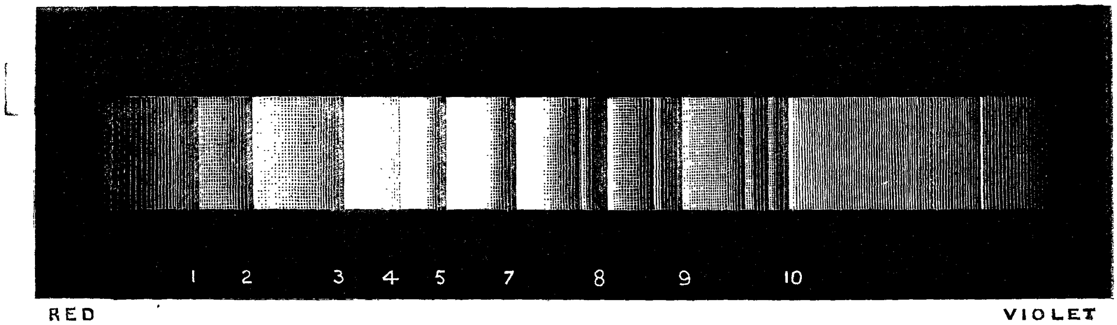
1888MNRAS..49...18E

On the Spectra of R Cygni and Mira Ceti and some Stars with probably similar Spectra. By Rev. T. E. Espin.

R Cygni.—On August 13 a very bright line, apparently F, was visible in the spectrum of this star. The line was subsequently seen on several nights, and was measured and confirmed by Dr. Copeland at Dun Echt.

Mira Ceti.—During the maximum of this star the colour was very pale yellow; as soon as the maximum was passed the colour gradually inclined to orange. The accompanying drawing gives the appearance of the spectrum on October 23 in strong moonlight, and on October 30 on a dark sky, when the star had faded considerably. The observation of October 30 only added one new detail to the spectrum; this was the fact that band No. 8 in Dr. Dunér's nomenclature was really divided into two. Band No. 9 is also broken up into at least two, and band No. 10 into three. Whether these interferences in the bands are due to bright lines I am unable definitely to say.



Spectrum of *Mira Ceti*, 1888, October 23, 30.

The numbers refer to Dr. Dunér's bands.

Further away in the violet there is a brilliant line which may be the γ hydrogen line. The beauty of the spectrum is beyond anything I have seen. The spectrum was observed with a direct-vision prism before an eyepiece magnifying 200 times. By altering the distance between the prism and the eyepiece increased length of spectrum is obtained at pleasure. With the prism close to the eyepiece the spectrum of *a Orionis* consists of the usual III. type bands; by moving the prism six inches or so away from the eyepiece the bands are resolved into innumerable lines.

Since Professor Pickering discovered the bright lines in *Mira Ceti* and in Mr. Gore's star in *Orion*, I have examined very many

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of the known III. type stars, but only in the case of the following have I been led to suspect a spectrum with bright lines. If the bright lines really exist in these stars they are very difficult objects. The full aperture of the 17¼ reflector is not sufficient really to deal with them satisfactorily.

		1855.		
(1)	Südl. D.M. − 12°·1092	α = V. 4 36·9	δ − 12° 1·8	Mag. 6·5
(2)	D.M. + 39°·3476	XVIII. 33 19·2	+ 39° 32·8	,, 6·5
(3)	D.M. + 49°·2999	XIX. 20 44·2	+ 49° 57·0	,, 7·5

No. 1 was observed on October 30, 1888, only. The spectrum strongly resembles that of *Mira*.

No. 2 was observed on several nights; on two the bright lines were thought doubtful, on one pretty certain.

No. 3.—Observed on several nights, and on each occasion the bright lines suspected.

Height of a Perseid Fireball. By W. F. Denning.

On August 13, 1888, at 11ʰ 33ᵐ, while watching for shooting stars, I saw a large fireball low in the northern sky. In the earlier part of its flight its magnitude was not considerable, but towards the end it suddenly blazed up with intense brilliancy, and illuminated the whole hemisphere with a flash like lightning. In the brighter part of its path a streak was left, and this remained perceptible about forty seconds. I carefully registered the visible arc of the meteor's course as follows: 113° + 57½° to 126° + 52½°. This position lies between the constellations of *Ursa Major* and the *Lynx*, in a region comparatively bare of conspicuous stars.

Mr. David Booth at Leeds partially observed the phenomenon. He was looking towards the north-eastern sky for late Perseids when he was startled by a brilliant flash, which he immediately attributed to vivid lightning, but, on quickly turning round to the west, he noticed a very bright meteor streak projected amongst the stars of *Draco*. Its terminal points were 275° + 67° and 260° + 53°, and he correctly assumed it to have been left by a fine Perseid. Though straight at first the streak soon became irregularly bent, and after a gradual decadence, occupying three minutes, it finally disappeared.

Mr. Monck at Dublin also saw the same meteor, and approximately noted its flight as from the direction of *β Persei* to 41 *Arietis*; but there were many clouds about in the region of its appearance, which rendered the observation a little uncertain.

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